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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/720,558  | 11/24/2003  | David M. Lowe        | 2003B124            | 4856             |
| 23455   | 7590        | 11/30/2004           | EXAMINER            |                  |
| EXXONMOBIL CHEMICAL COMPANY<br>P O BOX 2149<br>BAYTOWN, TX 77522-2149 |             |                      | HAILEY, PATRICIA L  |                  |
|   |             | ART UNIT             | PAPER NUMBER        |                  |
|   |             | 1755                 |                     |                  |

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 10/720,558             | LOWE ET AL.         |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | Patricia L. Hailey     | 1755                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on October 14, 2004.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 54-62 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-53 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 8/24/04.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

*Election/Restrictions*

1. Applicant's election with traverse of Group I, claims 1-53, in the reply filed on October 14, 2004, is acknowledged. The traversal is on the ground(s) that "a search with respect to the catalyst claims...would also reveal any art relevant to the use of the respective catalysts in the process of selective hydrogenation of unsaturated hydrocarbons without undue burden." This is not found persuasive because the catalyst claims in their present form are not limited to use in a selective hydrogenation process, i.e., the catalyst claims are not defined exclusively as selective hydrogenation catalysts. As stated in the original restriction requirement, the catalysts as claimed can be used in another and materially different process, such as a process for the isomerization of aromatic hydrocarbons.

Therefore, the requirement is still deemed proper and is therefore made FINAL.

2. Claims 54-62 are hereby withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected process for selectively removing alkynes or diolefins from a feedstock also containing olefins, there being no allowable generic or linking claim.

*Specification*

3. *The disclosure is objected to because of the following informalities:*

On pages 1 and 4 of the Specification, reference is made to two copending applications. While there are docket numbers recited, there are no serial numbers (e.g., 10/123,456) recited. See paragraphs [0001] and [0013] of Applicants' Specification.

Appropriate correction is required.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. ***Claims 6-18, 42, 52, and 52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5-13, 18-38, 44, and 45 of copending Application No. 10/720,607.***

Although the conflicting claims are not identical, they are not patentably distinct from each other because while both sets of claims are drawn to a "catalyst composition", the claims in the instant application recite the presence of a first component comprising rhodium, a second metal selected from Group 13, and a third metal component selected from Groups 1-15, said metal being other than the first and second components, whereas the claims in the '607 application recite the presence of a support (also recited in claim 7 of the instant application), rhodium, and a metal selected from Groups 1-15, said metal being other than rhodium. Additionally, the respective sets of claims recite percentage amounts of these components that are comparable to one another.

Obviously, the respective sets of claims define their components in terms overlapping each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) **the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.**

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

**7. *Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Uzio et al. (U. S. Patent No. 6,498,280).***

Uzio et al. teach a catalyst comprising at least one support, at least one element from Groups 8, 9, or 10 of the Periodic Table, at least one element from Group 14 of the Periodic Table, at least one element from Group 13 of the Periodic Table, and at least one alkali or alkaline earth metal, and, optionally, at least one halogen. See col. 4, lines 8-14 of Uzio et al.

Examples of Groups 8, 9, or 10 metals include rhodium, ruthenium, iron and cobalt. Although platinum is preferred, the selected metal(s) from these groups is present in the catalyst in amounts ranging from 0.01% to 5% by weight with respect to the total catalyst weight. See col. 4, lines 15-21 of Uzio et al.

The Group 14 element (tin, germanium, lead) is present in an amount ranging from 0.01% to 5% by weight relative to the total catalyst weight. See col. 4, lines 20-25 of Uzio et al.

The Group 13 metal is selected from indium, gallium, and thallium, preferably indium, and is present in amounts ranging from 0.005% to 3% by weight relative to the total weight of the catalyst. See col. 4, lines 26-29 of Uzio et al.

Examples of the support include aluminas. See col. 4, lines 42-50 of Uzio et al.

In view of these teachings, Uzio et al. anticipate claims 1-5.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the

subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

***11. Claims 6-45 and 47-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uzio et al. (U. S. Patent No. 6,498,280).***

Uzio et al. teach a catalyst comprising at least one support, at least one element from Groups 8, 9, or 10 of the Periodic Table, at least one element from Group 14 of the Periodic Table, at least one element from Group 13 of the Periodic Table, and at least one alkali or alkaline earth metal, and, optionally, at least one halogen. See col. 4, lines 8-14 of Uzio et al.

Examples of Groups 8, 9, or 10 metals include rhodium, ruthenium, iron and cobalt. Although platinum is preferred, the selected metal(s) from these groups is present in the catalyst in amounts ranging from 0.01% to 5% by weight with respect to the total catalyst weight. See col. 4, lines 15-21 of Uzio et al.

The Group 14 element (tin, germanium, lead) is present in an amount ranging from 0.01% to 5% by weight relative to the total catalyst weight. See col. 4, lines 20-25 of Uzio et al.

The Group 13 metal is selected from indium, gallium, and thallium, preferably indium, and is present in amounts ranging from 0.005% to 3% by weight relative to the total weight of the catalyst. See col. 4, lines 26-29 of Uzio et al.

Examples of the support include aluminas. See col. 4, lines 42-50 of Uzio et al.

Patentees' catalyst can be prepared by successive steps of depositing the metals, using any technique known in the art. These deposition steps can be performed in any order. Deposition can be performed by dry or excess impregnation, or by an ion exchange method. Calcining can be performed at temperatures of about 500°C. See col. 4, lines 52-64 of Uzio et al.

The metals can be deposited using any known precursors that are soluble in an aqueous medium; for the alkali and Groups 13 and 14 metals, decomposable salts such as nitrates can be employed. See col. 5, lines 34-45 of Uzio et al.

Uzio et al. do not teach the specifically claimed combinations of Applicants' catalyst compositions, e.g., of a first component comprising rhodium, a second component comprising at least one Group 13 metal, and at least one metal from Groups 1-15, said at least one metal different from said first and second components (claim 6). However, because this reference teaches a catalyst comprising metal components corresponding to those respectively claimed, as well as percentage amounts of these components that are numerically within the respectively claimed percentage ranges, one of ordinary skill in the art finds ample motivation in

selecting the metals disclosed in Uzio et al. to readily obtain Applicants' claimed invention.

**12. *Claims 1-20, 23-32, 35-47, and 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shepherd et al. (U. S. Patent No. 6,503,866).***

Shepherd et al. teach a catalyst comprising an alumina support (col. 3, line 7 to col. 4, line 4), and a platinum group component (e.g., ruthenium, rhodium) present in catalytically effective amounts, e.g., from about 0.01 to about 2 mass % of the final catalyst. The platinum group component may be incorporated into the alumina support in any suitable manner, such as coprecipitation, ion exchange, or impregnation, and may be provided by compounds such as rhodium nitrate. See col. 4, lines 8-61 of Shepherd et al.

The catalyst may also contain a Group IVA (Group 14) metal component such as germanium and tin, in amounts ranging from about 0.01 to about 5 mass %. See col. 5, lines 7-58 of Shepherd et al.

Optionally, the catalyst may contain other components or mixtures thereof which act alone or in concert as catalyst modifiers to improve activity, selectivity, or stability. Examples of these components include rhenium, gallium, indium, nickel, iron, tungsten, molybdenum, zinc, and cadmium. Catalytically effective amounts of these components may be added in any suitable manner to the carrier material during or after its preparation, or to the catalytic composite before, while, or after other components are being incorporated. Amounts of these components range from

about 0.01 to about 5 mass % of the composite. See col. 5, line 59 to col. 6, line 4 of Shepherd et al. This disclosure is considered to read upon Applicants' claim limitations regarding the metal components Groups 8-10 and 1-15 of the Periodic Table, as recited in the instant claims.

In the preparation of the catalyst, following the incorporation of the desired components with the alumina support, a calcination step is employed. Calcination typically takes place at a temperature of from about 370°C to about 600°C. See col. 6, lines 21-42 of Shepherd et al., as well as col. 7, lines 9-39.

Also, a reduction step is employed. Reduction conditions include a temperature of from about 315°C to about 650°C. See col. 7, lines 40-64 of Shepherd et al., especially lines 50-56.

Shepherd et al. do not teach the specifically claimed combinations of Applicants' catalyst compositions, e.g., of a first component comprising rhodium, a second component comprising at least one Group 13 metal, and at least one metal from Groups 1-15, said at least one metal different from said first and second components (claim 6). However, because this reference teaches a catalyst comprising metal components corresponding to those respectively claimed, as well as percentage amounts of these components that are numerically within the respectively claimed percentage ranges, one of ordinary skill in the art finds ample motivation in selecting the metals disclosed in Uzio et al. to readily obtain Applicants' claimed invention.

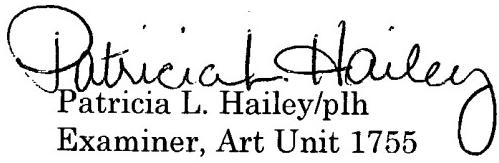
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark L. Bell can be reached on (571) 272-1362. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Patricia L. Hailey/plh  
Examiner, Art Unit 1755  
November 24, 2004

  
Mark L. Bell  
Supervisory Patent Examiner  
Technology Center 1700